

WHAT IS CLAIMED IS:

1. A cornea preservation medium comprising in sterile solution ingredients in final concentration:

potassium sulfate  $K_2SO_4$  (5 mM)

L-aspartic acid (110 mM)

magnesium sulfate (1.2 mM)

calcium hydroxide (2.0 mM)

potassium phosphate monobasic  $KH_2PO_4$  (20 mM)

N-2-hydroxyethylpiperazine-N'-2-ethanesulfonic acid (HEPES) (5 mM)

ethylene diamine tetraacetic acid (EDTA) (1 mM)

taurine (20 mM)

zinc sulfate (1 microM)

N-(tert-butyl) hydroxylamine HCL (200 microM)

dextran M.W. 60,00-90,000 (5.5% w/v)

15 N-acetyl-cysteine (0.5 mM)

gentamycin sulfate (0.02% w/v)

creatine phosphate (5 mM)

Lipid Concentrate (GIBCO/INVITROGEN #11905-031) (1% v/v)

at pH adjusted to 7.45 with 1 M KOH, and having an osmolarity of 310 to 320  
20 mOsmoles.

2. A kit for preserving tissue comprising:

a premeasured amount of the preservation medium of claim 1.

25 3. A kit for preserving tissue comprising:

a premeasured amount of the preservation medium of claim 1, and  
recorded instructions copackaged or associated with the premeasured amount  
describing use of the medium to preserve a tissue.

30 4. A kit for making the preservation medium of claim 1, comprising:

premeasured amounts of a plurality of the ingredients; and  
recorded instructions copackaged or associated with the premeasured amounts  
describing how to combine the ingredients to make the medium.

5. A method of making the preservation medium of claim 1, comprising the step of:  
combining the recited ingredients to make the medium.

6. A method of using the preservation medium of claim 1, comprising the step of:  
5 incubating a tissue in the medium.

7. A method of using the preservation medium of claim 1, comprising the step of:  
incubating a tissue in the medium; and  
verifying post-incubation survival utility of the tissue.

10 8. A method of using the preservation medium of claim 1, comprising the step of:  
incubating a tissue in the medium at 4 degrees C.

9. A method of using the preservation medium of claim 1, comprising the step of:  
15 incubating a tissue in the medium at 4 degrees C; and  
verifying post-incubation survival utility of the tissue.

10. A method of using the preservation medium of claim 1, comprising the step of:  
incubating a tissue in the medium at 4 degrees C for between 7 and 21 days.

20 11. A method of using the preservation medium of claim 1, comprising the step of:  
incubating a tissue in the medium at 4 degrees C for between 7 and 21 days; and  
verifying post-incubation survival utility of the tissue.

25 12. A method of using the preservation medium of claim 1, comprising the step of:  
incubating a cornea tissue in the medium at 4 degrees C for between 7 and 21 days.

13. A method of using the preservation medium of claim 1, comprising the step of:  
incubating a cornea tissue in the medium at 4 degrees C for between 7 and 21 days;  
30 and  
verifying post-incubation survival utility of the tissue.